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MEMORANDUM

DATE. 2 December 1998

TO: David Bennett, WAM, U.S. EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
RMc Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Chlorinated Pesticide Data
Laboratory Batch: K9805545
Site: Duwamish River

WORK ASSIGNMENT NO 46-23-0JZZ

WORK ORDER NO.: 4000-019-038-5200-00

DOC. CONTROL NO.: 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON, Seattle

The quality assurance review of one sediment sample, laboratory batch K9805545, collected from the Duwamish River has been completed. Samples were analyzed for chlorinated pesticides by Columbia Analytical Services of Kelso, Washington using EPA Method 8081. The samples were numbered:

98344005

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1-05, February 1994).

1. Timeliness

   All samples met holding time criteria of 14 days for sample extraction and 40 additional days for extract analysis

2. GC/ECD Instrument Performance

   i) Retention Time Windows

   Retention times of all pesticides were within windows calculated from the initial calibration.

   ii) DDT/Endrin Breakdown

   The percent breakdown for 4,4'-DDT and Endrin was less than 20 percent for each compound and combined breakdown was less than 30 percent on both GC columns.

3. Initial Calibration

   a) Individual Standard Mixtures

   Retention time windows were calculated correctly.

   Appropriate standards concentrations were used and peak heights of 50 to 100 percent of full scale were obtained.

   Calibration factor percent relative standard deviation (%RSD) met QC criteria of 20 percent for pesticides and 30 percent for surrogates.

4. Calibration Verification

   Instrument blanks and PEM samples were analyzed at the proper frequency

   The difference between actual and calculated concentrations of individual pesticides was within QC criteria of ±25 percent

5 Detection Limits

Instrument detection limits met project required quantitation limits with the following exceptions:

Sample	Compound	QL Goal (µg/Kg)	Reported QL (µg/Kg)
98344005	Heptachlor Epoxide	1	4
98344005	Dieldrin	2	5
98344005	DDE	1	3
98344005	Endosulfan II	2	3

Where quantitation limit goals were exceeded, undetected analytes were qualified (UI) to indicate matrix interference

6. Blanks

a) Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

No target analytes were reported in laboratory method blanks.

b) Field Blanks

No field blanks were associated with this laboratory batch.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria (P-project, L-laboratory) for all samples except

Sample	Compound	Percent Recovery	QC Limits
KK980821-LCS	Tetrachloro-m-xylene	18	30-150 (P) 20-107 (L)

Surrogate recoveries for all associated samples were within both project and laboratory QC limits. Decachlorobiphenyl in the LCS was within QC limits. No qualifiers were assigned based solely on the LCS surrogate recovery.

8. Matrix Spike and Matrix Spike Duplicate

Matrix spike (MS) or matrix spike duplicate (MSD) percent recovery for the following compounds were outside QC guidelines (P-project, L-laboratory).

Sample	Compound	Percent Recovery	QC Limits
98344005MS	Endrin	41	42-139 (P) 39-130 (L)
98344005DMS	gamma-BHC (Lindane)	41	46-127 (P) 28-123 (L)
98344005DMS	Endrin	35	42-139 (P) 39-130 (L)

Relative percent differences (RPD) between the MS and MSD percent recoveries met QC guidelines. No action was taken based solely on MS/MSD data.

9. Laboratory Control Sample (LCS)

The following compounds were outside the QC guidelines (P-project, L-laboratory)

Sample	Compound	Percent Recovery	QC Limits
K980821-LCS	gamma-BHC (Lindane)	48	70-130 (P) 40-124 (L)
K980821-LCS	Heptachlor	48	70-130 (P) 40-117 (L)
K980821-LCS	Aldrin	49	70-130 (P) 43-108 (L)
K980821-LCS	Dieldrin	53	70-130 (P) 42-127 (L)
K980821-LCS	Endrin	68	70-130 (P) 46-123 (L)

Results for compounds listed above were qualified as estimated (J). Undetected analytes were also qualified as estimated (UJ).

10. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

11. Second Column Confirmation

The relative percent difference (RPD) in reported analyte concentration was greater than 35 percent for the primary and confirmation column for the following samples:

Sample Number	Compound	DB-5 Conc.	DB-608 Conc	RPD
98344005	gamma-Chlordane	ND	4.10	NA
98344005	Endosulfan I	3 61	ND	NA
98344005	alpha-Chlordane	2.79	0 34 (ND)	156
98344005	Endrin	6 15	ND	NA
98344005	DDT	1 91 (ND)	3 59	61
98344005	Methoxychlor	8 05	ND	NA

Differences can arise from analytical interferences on one column. However, the relative percent differences are not deemed significant at the reported concentrations The lower concentration was reported for each analyte.

12. Sample Analysis

A cursory review of raw data was performed All laboratory deliverables were present and complete. A duplicate analysis of sample 98344005 was analyzed; all RPDs were less than 35 percent. The case narrative indicated that the TCMX surrogate recovery for the LCS was outside the QC limits. As all other QC results associated with this SDG were within QC limits, no action was taken. The MSD result for endrin was outside the laboratory QC limits because of suspected matrix interference. As the MS and LCS results were within the laboratory QC limits, no action was taken. No other unusual problems were noted.

13. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less then CRDL or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

I - Elevated reporting limit due to matrix interference.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9805545
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	8/17/98
Sample Matrix:	Sediment	**Date Received:**	8/18/98

Organochlorine Pesticides

Sample Name	98344005	Units	ug/Kg (ppb)
Lab Code	K9805545-006	Basis	Dry
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
alpha-BHC	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND	
beta-BHC	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND	
gamma-BHC (Lindane)	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND 1 UJ	
Heptachlor	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND 1 UJ	
Aldrin	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND 1 UJ	
Heptachlor Epoxide	EPA 3550A	8081A	4	1	8/21/98	9/8/98	ND 4 UI	B
gamma-Chlordane	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND	
Endosulfan I	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND	
alpha-Chlordane	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND	
Dieldrin	EPA 3550A	8081A	5	1	8/21/98	9/8/98	ND 5 UIJ	B
4,4'-DDE	EPA 3550A	8081A	3	1	8/21/98	9/8/98	ND 3 UI	B
Endrin	EPA 3550A	8081A	2	1	8/21/98	9/8/98	ND 2 UJ	
Endosulfan II	EPA 3550A	8081A	3	1	8/21/98	9/8/98	ND 3 UI	B
4,4'-DDD	EPA 3550A	8081A	2	1	8/21/98	9/8/98	4	
Endrin Aldehyde	EPA 3550A	8081A	2	1	8/21/98	9/8/98	ND	
Endosulfan Sulfate	EPA 3550A	8081A	2	1	8/21/98	9/8/98	ND	
4,4'-DDT	EPA 3550A	8081A	2	1	8/21/98	9/8/98	ND	
Endrin Ketone	EPA 3550A	8081A	2	1	8/21/98	9/8/98	ND	
Methoxychlor	EPA 3550A	8081A	1	1	8/21/98	9/8/98	ND	
Toxaphene	EPA 3550A	8081A	10	1	8/21/98	9/8/98	ND	

B The MRL is elevated because of matrix interferences

MGT 11/15/98

Approved By _____ Date 9-16-98

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